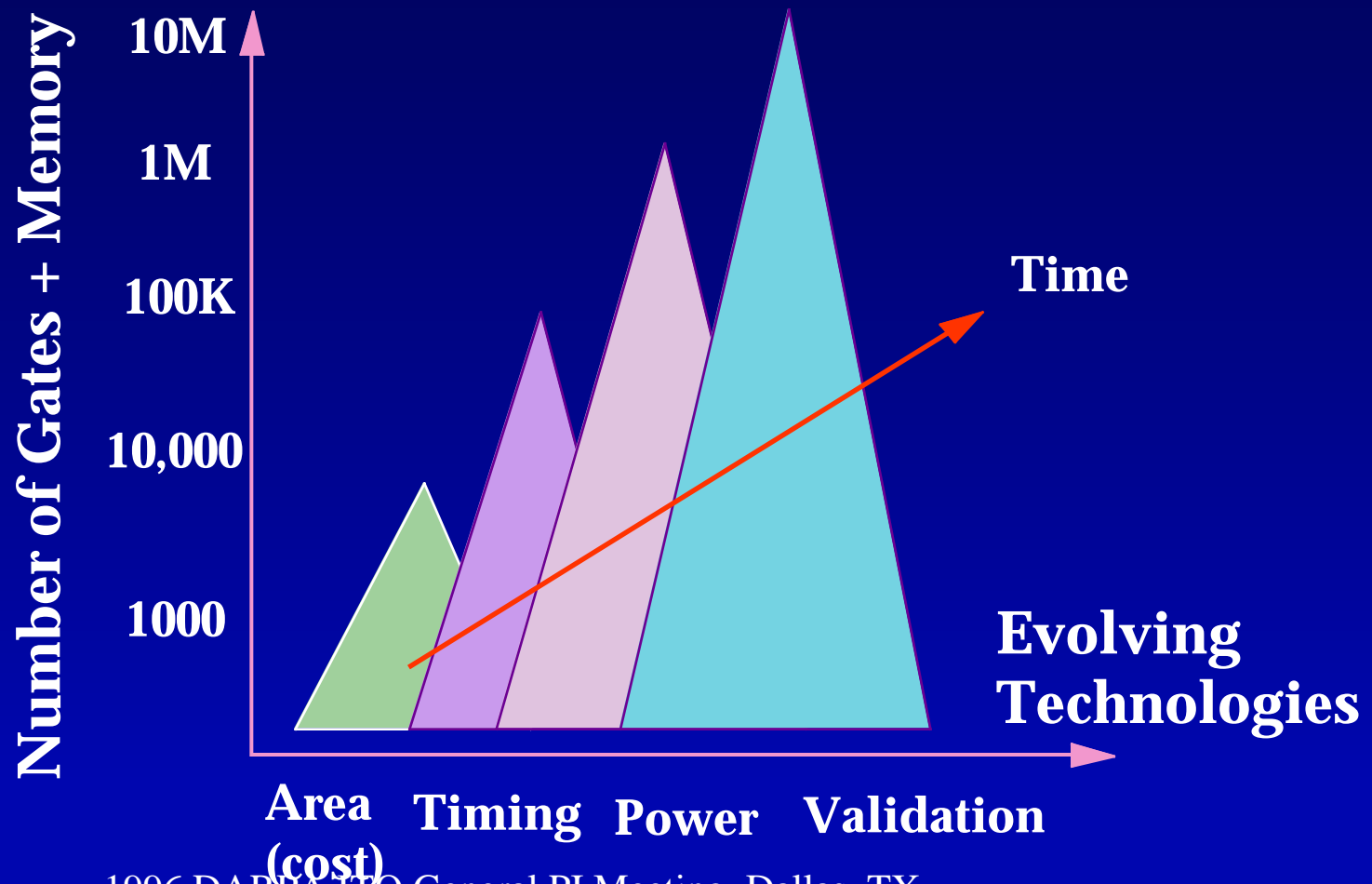


WG#5: WebBased Design of Complex Systems

A Moving Target



1996 DARPA ITO General PI Meeting, Dallas, TX

Report Summary

- **Design of Complex Microsystems**
 - CY2000 over 100M transistors/chip
 - Mixed Disciplines (analog, digital, MEMS) both on and off chip
 - No one can “own” all the expertise needed to meet its needs in microsystem design
 - Rapid response in design as well as design system
 - Less effective at technology transfer from research because of the current infrastructure

WG#5: WebBased Design of Complex Systems

Addressing the Challenges

- **Challenges**
 - **Interoperability & collaboration at all levels**
 - **Performance (“time to results”)**
 - **Validation & trust of tools and designs (leads to re-use)**
 - **Abstraction & modelling**
 - **Capturing the rationale for designs**
 - **Data volume / latency issues**
 - **Security/Protection**

WG#5: WebBased Design of Complex Systems

Addressing the Challenges

- **Novel Approaches**
 - **Use of Inter(tra)net technology**
 - **Knowledge sharing over distance & time**
 - **Access to expensive / unique resources**
 - **Distributing both the capabilities and the problem**

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Projected Outcome

- **Short Term**
 - **Demonstrate the results of microsystems research in a national-scale, web-based experiment**
 - **Identify the research challenges in the design of complex microsystems**

Projected Outcome

- **Longer Term**
 - **Develop a scaleable architecture for microsystems integration**
 - **Solve a significant and complex DoD design problem**
 - **Act as real “user” for many of the collaboration/network/distributed technologies**

Investment Strategy

- **DARPA, Industry Support**
 - Existing players are not motivated to solve this problem
 - Industry is a natural and necessary player in this effort
- **What if we did not do this?**
 - DoD cannot distinguish itself from a pure COTS model without these technologies
- **Optimal Scale of Efforts**
 - Relatively small effort leveraging many other investments